

title, although this naturally constitutes the main theme. The number of other subjects incidentally treated of, furnishes a pleasing variety, and largely helps to maintain the interest of the reader, whether he be scientific or not. In pursuing his subject, Prof. Mosso is led into a criticism of Greek art, and contrasts as a medium of expression of the emotions the works of Phidias and Praxiteles with those of the schools of Pergamos and Rhodes. He compares the Niobe with the Laocoon; in the former he finds lacking "the expression of intense emotion, of horror, fear, and pain, which would inevitably be present in the terrible moment of so cruel a butchery."

"Though Praxiteles himself were the creator of the Niobe group, I yet hold that a humble physiologist, looking with dispassionate eye at these statues, may affirm that they fall short of the fame of so great a master, because the faces are not so modelled as to produce the desired effect, because nature is not faithfully copied, and because there lacks the sublime ideality of terror aroused by the chastisement of an offended deity, which was the subject of the work."

On the other hand, in spite of certain anatomical errors in the furrows of the brow in the Laocoon,

"an intense and majestic pain is written on the face, . . . one seems to hear the sigh of superhuman agony from his lips, and sees the lines of beauty and of pain wonderfully blended."

In touching upon questions of inheritance, the author shows himself rather a disciple of Spencer than of Darwin. But it is not clear upon what evidence he founds the statement that if two hounds of the same litter are taken, and one trained for sport and the other as a watch-dog, their offspring, after four or five generations of such training, although brought up under the same conditions and far from noise, will be in the one case excited, in the other terrified on first hearing the report of a gun. Nor I conceive will the assertion be generally accepted that the disappearance of the eyes in subterranean animals "is certainly not the result of natural selection, for eyes are not injurious even to beings living in the dark." On the other hand all will agree with the author in deprecating the installation of fear in the child, of which the ignorant mother or nurse is so often guilty.

"The children of ancient Greece and Rome used to be frightened with the lamias who would suck their blood, with the masks of the atellans, the Cyclops, or with a black Mercury who would come to carry them away. And this most pernicious error in education has not yet disappeared, for children are still frightened with the bogey-man, with stories of imaginary monsters, the ogre, the hobgoblin, the wizard and the witches."

"Children should be brought up as though they were rational. . . . The same methods should be followed in education as in the teaching of science . . . we should never issue any command without showing the reasons why it should be done in this way rather than in another." . . . "They must not be fatigued with study . . . even for healthy children premature education is a very grievous error."

"Parents who have already some weak spot—a little fault in the character, a slight blemish in the organism—should redouble their care in order to cure their children from their own defects. . . . The paramount object of education should be to increase the strength of man, and

to foster in him everything which conduces to life. . . . We sometimes imagine that the most important branch of culture is that which we attain through education and study . . . but in ourselves, our blood, there is a no less important factor. . . . Fear is a disease to be cured; the brave man may fail sometimes, but the coward fails always."

The translation is excellent throughout.

E. A. SCHÄFER.

OUR BOOK SHELF.

Die Physiologie des Geruchs. (*The Physiology of Smell.*) By Dr. H. Zwaardemaker. Pp. 324. (Leipzig: Engelmann, 1895.)

VON HARTMAN, in defending himself against a friend who upbraids him for having wasted upon philosophy talents which might have been devoted to the accumulation of facts of positive science, points out in memorable words that facts of science are amassed only in order that they may be synthesised.

The critic is bound to remember this in appraising a book like that of Dr. Zwaardemaker's, for Dr. Zwaardemaker has added to the burden of physiological facts, and he has not established any generalisations to assist us in the carrying of that load.

If we overlook this fact, and we ought not to overlook it lightly, the work is a most praiseworthy one, a work that is characterised by the thoroughness which the Teuton strives after, and which, as a matter of fact, is found in the best of Low German science. There are very careful chapters in this book, only to mention a few, on the physical characteristics of odorous substances, on the mechanics of smell, on "olfactory" and "breath-fields," on the relations between taste and smell, on a new method of testing the acuity of smell, on the masking of smells by other smells, on the classification of smells, and on Prof. Haycraft's work on the relations between odour and chemical composition. Many of these subjects are treated with considerable originality. The "breath-field" is mapped out by breathing on a bright metallic surface. It is shown that two patches of dimness are produced, corresponding respectively to the right and the left nostril. It is further shown that each of these fields is subdivided into two smaller fields by a linear interspace, which in all probability corresponds to the inferior turbinated bone. The two patches of dimness on each side, therefore, in all probability correspond to the two streams of air which pass respectively above and below the lower turbinated bone. The patch of dimness which corresponds to the current of air which passes over the lower turbinated bone is conterminous with the olfactory field as determined by an independent method.

The apparatus for testing the acuity of smell consists of a porous clay cylinder, which is fitted up somewhat after the manner of a syringe. The piston-rod consists of a tube which serves to convey the air into the nostril. The air which is thus fed into the nostril consists in part of inodorous air which has been drawn in from without through the open end of the clay cylinder, and in part of air which has been in contact with the walls of the porous cylinder which has been impregnated with an odorous substance. The proportion of odorous to inodorous air can be varied at pleasure by regulating the position of the piston in the cylinder.

The chapter on the association between smell and taste emphasises the fact that there is an inlet to the olfactory chamber through the posterior nares, as well as through the nostrils. We therefore smell both when we inspire and when we expire. It is because he is ignorant of this fact that the layman is incredulous when he is

informed that many of the sensations which he refers to taste are in reality referable to smell, and it is on account of the same ignorance, that the child thinks he is treated irrationally when his nose is held while his castor-oil is being administered to him.

A few facts of this sort will be all that an ordinary reader will carry away from a perusal of this book. The book will be really valuable only to the physiologist who, like Dr. Zwaardemaker, is willing to devote himself to the study of the physiology of smell.

Computation Rules and Logarithms. By Prof. Silas W. Holman. Pp. xlv + 73. (New York and London: Macmillan and Co., 1896.)

THE first portion of this book treats of the way to use logarithms so as to apply no more figures than necessary; the author pointing out that probably one half of the time expended in computations is wasted through the use of excessive number of places of figures, and through the failure to employ logarithms. With this in view, rules are given showing what place tables to employ, and also how many figures to retain to obtain an accuracy of any desired percentage.

That such rules are of high importance may be seen from the fact that the use of five place tables when four would suffice nearly doubles the labour; using six place instead of four nearly trebles it, thus wasting a hundred and two hundred per cent. respectively of the necessary amount of work, and probably a greater proportion of time.

Besides these rules and the usual explanation to the collection of mathematical tables, there is a short treatment on "Notation by Powers of Ten," which, as the author sees, is a method that if taught with elementary arithmetic, it would enormously facilitate the teaching of logarithms; but his "Symmetrical Grouping of Figures" about the unit's place is a departure likely to be received with some degree of conservatism. There is a useful paragraph on the "Habit in Reading off Numbers or Logarithms," which consists in emphasising and grouping the figures in a certain habitual way. The latter part of the book is taken up by a collection of mathematical tables, *e.g.* logarithms, antilogarithms and cologarithms to four places, logarithms to five places, logarithms of the trigonometrical functions, slide wire ratios to four places, &c. The decimal point, usually omitted, has been retained in the tables for facilitating in reading off.

Remarkable Eclipses. By W. T. Lynn. Pp. 52. (London: Edward Stanford, 1896.)

THIS "sketch of the most interesting circumstances connected with the observation of solar and lunar eclipses, both in ancient and modern time," appears at a very appropriate time, since in a little more than two months the general public will be mildly interested in a total eclipse of the sun, for the observation of which in Norway, Japan, and elsewhere, many astronomers are making preparations. Mr. Lynn has contrived to compress a marvellous amount of very readable information in his slender little volume, and as a condensed statement of the history of eclipse observations his essay is admirable. The book is uniform with "Remarkable Comets," and it deserves the same successful career as its forerunner.

The Old Light and the New. By Wm. Ackroyd, F.I.C. Pp. 102. Illustrated. (London: Chapman and Hall, Ltd., 1896.)

WE very much question the wisdom of placing this book upon the market. The information on researches with Röntgen rays is very sketchy, while a large portion of the book, dealing with theories of the natural colours of bodies, is nothing more than padding, and is altogether out of place in a volume of this character.

LETTERS TO THE EDITOR.

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A Curious Idiosyncrasy.

A STRONGLY marked idiosyncrasy has lately come to my notice, which should be recorded. A lady of my acquaintance was walking with a relative, Colonel M., when the wife of a tenant addressed her, and described how the hand of her own child had been pinched in a door. Overhearing her story, Colonel M. became quite unwell, so much so as to lead to particular inquiry, which resulted in showing that allusions to any accidents of that kind affected him at once in a very perceptible way. Finally, at the request of the lady, he wrote an account of his peculiarity, which she forwarded to me. Thereupon I corresponded with Colonel M., who slightly revised what he had written, and sanctioned its publication. It is as follows:—

"From my earliest remembrance, and still up to now, any sight of an injured nail in any person, even if a total stranger, or any injury, however slight, to one of my own nails, causes me to break into a deadly cold perspiration, with feeling of sick faintness. But still further; if I chance to hear any one else narrating in casual conversation any injury of this particular sort to themselves or others, it brings on me exactly the same feeling. I have described above. So much is this the case, that many years ago, when I was in the prime of life, at a large dinner party, when one of the guests near me persistently chanced to go on talking minutely of some such little accidental injury that had befallen him, I turned very faint, tried all I knew to shake it off, but could not, and presently slid right under the table quite unconscious for the moment. This is the more singular because on no other point am I in the least squeamish. In old days I have seen soldiers flogged before breakfast without its affecting me, though some of the rank and file would be very much upset, and in cases of death, illness, or wounds, I have never experienced, as an onlooker, the sensations I have alluded to above."

I may mention that the mother of Colonel M. had pinched her own finger-nail badly shortly before his birth, and, as is not uncommon in coincidences of that kind, she believed her accident to have been the cause of her son's peculiarity. He writes to me:—

"As a boy I was conscious of this repugnance of mine, but was ashamed of it, and never used to mention it to any one. When I became a young man I one day mentioned it *privately* to my mother, who it appeared had already noticed it in me as a child. She then told me the incident about her own finger, and she and I being both utterly unscientific persons, assumed then and there that my squeamish feelings about injuries to fingertips must be connected with her little accident."

In reply to further questions, I learn that the injury to the mother, however painful at the time, was not so severe as to leave a permanent mark. Also, that no analogous peculiarity is known to exist among the near relations of Colonel M., of whom he specifies his father, brother, three sisters, nephews and nieces. He has no children.

This anecdote proves, so far as the evidence goes, that a very peculiar idiosyncrasy may spring suddenly into full existence, and need not develop gradually through small ancestral variations in the same direction. It is a more astonishing phenomenon than the equally sudden appearance of musical faculty in a single member of a non-musical family, being very special, and so uncommon and worse than useless that its ascription to reversion, in the common sense of the word, would be absurd. That is to say, it would be silly to suppose a sickly horror of wounded finger-nails or claws to have been so advantageous to ancient man or to his brute progenitors, as to have formerly become a racial characteristic through natural selection, and though it fell into disuse under changed conditions and apparently disappeared, it was not utterly lost, the present case showing a sudden reversion to ancestral traits. Such an argument would be nonsense. But though this particular characteristic is of negative utility, its existence is a fresh evidence of the enormously wide range of possibilities in the further evolution of human faculty.

FRANCIS GALTON.